

REMARKS

This is responsive to the Office Action mailed June 10, 2005. As the application is under final rejection, this submission is accompanied by a request for continued examination (RCE) under 37 CFR 1.114 together with the required fee.

Applicants traverse the rejections because none of the references cited disclose a "cleaning bushing." Each reference is considered in this regard below.

George et al., U.S. Patent No. 5,484,132 ("George")

The Examiner states that George discloses a cleaning bushing (13) and a collar (15). The Examiner asserts that if a striking force is applied to the body portion 13, by striking the cap section 15 of the configuration shown in Figure 6 of George, this would result in a relaxation of the grip that the device applies to a hole surface as claimed.

Applicants respectfully submit that this result would not occur, taking all of the teachings of the reference into account. Striking the cap section 15 would serve only to drive all three of the wedge shaped portions of George together further into the hole, resulting in no loosening of the grip as required by the claims.

Figure 6 purports to show the device in its maximally wedged condition, i.e., the wedge-shaped portion 23 is pulled back (by pulling on the loop handle 31) relative to wedge shaped portions 25a and 25b (the wedge shaped portion 25b not being visible in Figure 6 but can be seen in Figure 3) as much as possible. The wedge shaped portion 23 cannot be pulled back any further than what is shown in Figure 6 because of interference with the body portion 13.

The reference also states that the device can be loosened by pushing in on the loop handle 31 (Col. 13, lines 1 - 12).

Therefore, it follows that the wedging is not so tight that it cannot be overcome by applying a compressive force to the relatively long length of cable 33. It must be that the body portion 13 stops the wedge shaped portion 23 at a predetermined tightness, whereby the grip is not so tight that it cannot be loosened as explained.

Since, by design, the device can be loosened simply by pushing on the loop handle 31, there is no need to strike the device. However, even if the device is struck as the Examiner proposes, it would not result in loosening the grip.

As just mentioned, the reference states that the wedge portion 23 will move forward in the hole if the loop handle 31 is pushed. The (compressive) force causing this result is carried by a cable 33. Alternatively, as the Examiner suggests, the force required to drive the wedge shaped portion 23 forward could be applied by the body portion 13 directly (by striking the cap section 15) because the wedge portion 23 abuts the body portion 13. However, this action would also result in the application of a force to the wedge portions 25a and 25b which are attached to the body portion 13 by respective cables 35 and 37 (see Figure 4). Moreover, by inspection of Figure 6 it is apparent that the cables 35 and 37 are each significantly shorter (and so significantly stiffer) than the cable 33.

Therefore, as a result of striking the device, the cables 35 and 37 will apply significantly more force to the wedge portions 25a and 25b than the cable 33 will apply to the wedge portion 23. Since, according to the reference, the force applied through the cable 33 to the wedge portion 23 is sufficient to move the wedge portion 23 forward, then the force applied through the cables 35 and 37 will be more than sufficient to move the wedge portions 25a and 25b forward as well, provided neither of the wedge portions 25a and 25b provide greater resistance to forward motion than the wedge portion 23.

And by inspection of Figure 3, it is apparent that the wedge portions 25a and 25b have similar outer configurations, the only difference being that each have substantially less surface area than the wedge portion 23, so their resistance to forward motion will in fact be less than the resistance of the wedge portion 23, not greater.

Therefore, striking the cap section 15 will result, according to the teachings of the reference and all of the logical conclusions derived therefrom, in driving the wedge portions 25a and 25b forward into the hole preferentially to the wedge shaped portion 23, which would result in tightening, rather than a loosening, of the grip of the device.

Best Jr., U.S. Patent No. 4,715,568 ("Best")

The Examiner states that Best discloses a cleaning bushing (64) and a collar (63). As is apparent from Figures 9, 10, and 11 of Best, the "cross bar 64" is adapted to receive a user's fingers for pulling on a "wire 61," against a bias (applied by a "spring 67") that biases a "body 58" (allegedly the claimed first chock) in a wedging position relative to a "wedge plate 51." Therefore, pulling on the cross bar 64 permits installing the device and releasing the cross bar 64 tightens the device's grip. However, it is readily apparent that the cross bar 64 is not adapted to apply a pushing force on the wire 61 (such as would result from striking the cross bar 64), and even it were, it would push the body 58 in precisely the wrong direction to relax the grip.

Byrne, U.S. Patent No. 4,834,327 ("Byrne")

Pushing in on the "pull component" 45 (either by pushing or striking) will do nothing to change the relative positions of the "translating wedge elements 15" and the "fixed wedge element 5" as would be required in this device to cause the device to relax its grip on the hole surface.

Lerich, U.S. Patent No. 3,352,193 ("Lerich")

The Examiner identifies the "nut 32" of Lerich as the claimed cleaning bushing and the "shank 12" of the "bolt 10" as the claimed cable. Apparently, the Examiner is proposing to strike the nut 32 in an azimuthal direction so as to turn the nut.

In any event, tightening the nut 32 will move, in the axial direction, "wedge shaped expansion members 18" relative to "recesses 16" in the shank, forcing the wedges to expand and the grip of the device to tighten, as explained at Col. 3, lines 53 - 61. However, the reference also explains that, to loosen the grip, "the nut 32 is backed off from the washer [30] and, by tapping lightly on the outer extremity of the bolt, the shank is advanced forwardly until the wedges are retracted within the recesses." Id. at lines 62 - 66. Hence, the reference describes striking, not the nut 32 that the Examiner identifies as a cleaning bushing, but the outer extremity of what the Examiner has identified as the claimed cable. By contrast, striking the nut 32 as the Examiner proposes will not loosen the device, because backing off the nut does not move the washer, which would be required in this device to cause the device to relax its grip.

Additional Comments

The Examiner states that Dohmeier, U.S. Patent No. 3,478,641 teaches that cables and rigid rods are "art recognized equivalents." Applicants respectfully disagree. On the contrary, the invention provides a unique advantage in the art precisely because these structures are not equivalent.

Cables are inherently flexible as compared to rods because of the manner of their construction, i.e., they are formed by twisting extremely slender filaments into a rope-like structure. Thence, cables are generally used where the forces to be transmitted are tensile forces, while rods may generally be used equally well in either tension or compression.

Dohmeier is consistent. Dohmeier discloses an embodiment using a cable and an embodiment using a rod because the cable and the rod are only subjected to tension and for that purpose they are equivalent. Dohmeier does not teach that cables and rods are equivalent in uses in which these structures are subject to significant compressive force.

The problem solved by the present invention arises in the first place because of the use of a cable, which provides well-known advantages but which is also poor at transmitting compressive force. Therefore, a "cleaning bushing" is provided according to the invention that can sustain a compressive force sufficient to loosen the expansion bolt when it is tightly expanded in a hole.

By contrast, in the prior art, it was necessary to use the same cable to loosen the grip of the device (i.e., by pushing on the cable as in George), that was used to tighten it (by pulling on the cable). But it was a problem that a cable cannot transmit the same degree of force in compression that it transmitted in tension. George addressed the problem by strictly limiting the degree of force needed, by limiting the grip, but this strategy likewise limits the capacity of the device to perform its intended function.

Further Distinctions

The dependent claims all recite further distinctions that are not taught or suggested by any of the cited references. Since none of the references recognize the function of a cleaning bushing in the first place, none teach or suggest how to implement a cleaning bushing in


combination with, e.g., three or more chocks, or in combination with any of the other specific features claimed.

The Amended Claims

Claims 32 and 62 have been amended to remove unnecessary limitations and clarify the subject matter claimed. As can be seen from the arguments made above, the amendments are not necessitated by prior art. All of the claims require a cleaning bushing having properties that are not to be found, taught or suggested in any of the references cited.

For all of the above reasons, the Examiner is respectfully requested to allow claims 61 - 91 and pass this case to issue.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Garth Janke', is written over the printed name.

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